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PUBLIC HEALTH SERVICE
THOMAS PARRAN, *Surgeon General*

# The Mentally Ill and Mentally Handicapped in Institutions

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# THE MENTALLY ILL AND MENTALLY HANDICAPPED IN INSTITUTIONS

## A Study of the Regional Distribution of the Mentally Diseased, Mentally Defective, Epileptic, Drug Addicted, and Other Mentally Handicapped in Institutions in the United States, 1935 [1]

By JOSEPH ZUBIN, *Assistant Psychologist, United States Public Health Service,* and *Statistician, Mental Hospital Survey Committee*

### SCOPE OF PROBLEM

The conquest of the acute infectious diseases that has been accomplished in the last few decades has revealed a new frontier—that of chronic illness—and on that frontier one of the most important salients is the area of mental illness and handicap. The problem of caring for the mentally ill and handicapped will soon be one of the primary concerns of public health services. The vast dimensions of this problem become apparent only when it is realized that on any given day nearly 1 percent of our population, about 1,300,000 people, are incapacitated by mental disease, mental defect, epilepsy, or other types of mental illness (*1*).[2] The amount of unreported mental illness and handicap can only be guessed at. From the point of view of cost it has been estimated that about 7 percent (*2*) of all State governmental cost-payments for operation and maintenance of general departments [3] are devoted to the care of these patients and that the total outlay for maintenance expenditure for all such patients in insti-

[1] The Mental Hospital Survey Committee was created to make a 3-year survey of the institutional facilities for caring for the mentally diseased, mentally defective, epileptic, alcoholic, drug addicted, and other mentally handicapped persons. It is composed of representatives of the following organizations: The National Committee for Mental Hygiene, American Psychiatric Association, United States Public Health Service, American Medical Association, the American Board of Psychiatry and Neurology, American Neurological Association, the Canadian National Committee for Mental Hygiene, the Canadian Medical Association.

The author is indebted to Dr. S. D. Collins, Dr. Neil A. Dayton, Dr. H. B. Elkind, and Dr. Horatio M. Pollock for reading the manuscript in its preliminary form and making many valuable suggestions; and to Miss Grace C. Scholz for much valuable statistical assistance.

[2] Data for 81 urban centers indicate that the rate of incapacitation because of nervous and mental disease of non-hospitalized cases is 550 per 100,000 of the total population. Adding to this the hospitalization rates for mental disease and mental defect and epilepsy, it is estimated that one percent of the population is incapacitated because of nervous and mental disease.

[3] Expenditures for operation and maintenance of general departments comprise expenditures for general government, protection to person and property, health and sanitation, highways, charities, hospitals and corrections, schools, libraries, recreation, development and conservation of natural resources, and various miscellaneous payments, as reported in Financial Statistics of State and Local Governments, 1932. United States Department of Commerce, Bureau of the Census, United States Government Printing Office, Washington 1935.

tutions during 1935 was 166 million dollars (*3*), or more than one-fifth of the total expenditures for all hospitals.

There were 603 institutions caring for mental patients in 1936; their distribution by type of control and type of service is shown in table 1. There are two types of hospitals according to control—private and public, and there are four types of hospitals according to service—hospitals for mental disease, institutions for mental defectives and epileptics, hospitals for alcoholics and drug addicts, and psychopathic hospitals. The psychopathic hospitals listed in this table are hospitals for mental disease serving as emergency admission centers and providing treatment for acute patients only. These are distinguished from hospitals for mental diseases where the majority of patients are under continued treatment.

TABLE 1.—*Institutions for mental patients* [1] *in the United States, by type of institution, 1936*

| Type of institution | Number of institutions | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Mental disease | | Mental defect | | Alcoholic and drug | Psychopathic | Total | |
| | Number | Percent | Number | Percent | Number | Number | Number | Percent |
| Under Government control | 266 | 55.5 | 82 | 76.6 | 1 | 7 | 356 | 59.0 |
| State | 172 | 35.9 | 78 | 72.9 | ------ | 6 | 256 | 42.5 |
| County | 62 | 12.9 | 1 | 0.9 | ------ | ------ | 63 | 10.4 |
| City | 5 | 1.1 | 3 | 2.8 | ------ | 1 | 9 | 1.5 |
| Veterans' Administration facilities and Federal | 27 | 5.6 | ------ | ------ | 1 | ------ | 28 | 4.6 |
| Under private control | 213 | 44.5 | 25 | 23.4 | 7 | 2 | 247 | 41.0 |
| Nonprofit | 39 | 8.2 | 10 | 9.4 | 1 | 1 | 51 | 8.5 |
| Proprietary | 174 | 36.3 | 15 | 14.0 | 6 | 1 | 196 | 32.5 |
| Total | 479 | 100.0 | 107 | 100.0 | 8 | 9 | 603 | 100.0 |

[1] The term "mental patient" is here used to designate the mentally diseased, mentally defective, epileptic, alcoholic, etc. It is equivalent to the term "neuro-psychiatric" as used by the Surgeon General of the Army and the Veterans' Administration.

(Source: Hospital number of the Journal of the American Medical Association, March 1937 and March 1936.)

The proportion of Government-controlled institutions (State and Federal) is nearly 60 percent of the total. The Government (State and Federal) controls 55.5 percent of the hospitals for mental disease and 76.6 percent of the institutions for mental defectives and epileptics. The distribution of patients in these institutions is shown in table 2.

The Federal- and State-controlled institutions account for fully 97 percent of all the mental patients, and the State institutions alone contain over 85 percent of all the patients. Care of the mentally ill is without doubt primarily a State function now, although in 1890 only one State had established complete State care.

TABLE 2.—*Distribution of mental patients in average daily residence in institutions in the United States, by type of institution, 1936*

| Type of institution | Mental disease | | Mental defect and epilepsy | | Alcoholic and drug | | Psychopathic | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number | Percent |
| Under Government control | 406,646 | 97.1 | 93,962 | 96.7 | 758 | 94.0 | 485 | 59.1 | 501,851 | 97.0 |
| State | [1] 348,366 | 83.2 | [2] 92,058 | 94.7 | ..... | ..... | 449 | 54.7 | 440,873 | 85.2 |
| County | [3] 27,180 | 6.5 | 662 | 0.7 | ..... | ..... | ..... | ..... | 27,842 | 5.4 |
| City | 4,709 | 1.1 | [4] 1,242 | 1.3 | ..... | ..... | 36 | 4.4 | 5,987 | 1.2 |
| Veterans' Administration facilities and Federal | 26,391 | 6.3 | ..... | ..... | 758 | 94.0 | ..... | ..... | 27,149 | 5.2 |
| Under private control | 11,948 | 2.9 | 3,220 | 3.3 | 48 | 6.0 | 335 | 40.9 | 15,551 | 3.0 |
| Nonprofit | [5] [6] 6,529 | 1.6 | 2,519 | 2.6 | 15 | 1.9 | 223 | 27.2 | 9,286 | 1.8 |
| Proprietary | [6] [7] 5,419 | 1.3 | [8] 701 | 0.7 | 33 | 4.1 | 112 | 13.7 | 6,265 | 1.2 |
| Total | 418,594 | 100.0 | 97,182 | 100.0 | 806 | 100.0 | 820 | 100.0 | 517,402 | 100.0 |

[1] Includes 1935 figures for 2 institutions and number of beds for 1 institution.
[2] Includes 1935 figures for 3 institutions.
[3] Includes 1935 figures for 7 institutions.
[4] Includes 1935 figures for 1 institution.
[5] Includes 1935 figures for 3 institutions.
[6] Patients with mental disease in private hospitals are classified under 3 headings: "Nervous and mental," "Mental," and "Nervous." The total of these 3 classifications has been given.
No figures were available for 1936 for 39 institutions. For 31 of these, the 1935 figures were used. For the remaining 8, the number of beds was used.
[7] Includes 1935 figures for 12 hospitals and number of beds for 7 hospitals.
[8] Includes 1935 figures for 3 hospitals.

(Source: See ref. 4.)

## SCOPE OF STUDY

The study of the mentally ill and handicapped has been divided into three parts: Care and cost of mental disease; care and cost of mental defect and epilepsy; and a summary dealing with the care of all the mentally ill and handicapped. This paper is the summary which is to serve as an introduction to the other two papers in the series.

The purpose of this summary is to describe the present extent of the care of the mentally ill and handicapped throughout the country. In measuring the extent of mental illness and handicap, two indexes have been found useful, namely, the hospitalization rate and the first admission rate. The former tells how many patients there are per 100,000 of the population exposed to hospitalization, while the latter indicates the number of new patients that were admitted in the course of 1 year per 100,000 of the exposed population. The first admission rate is the best available index of the incidence or current trend in mental illness and handicap, indicating whether it is increasing, decreasing, or stationary, while the hospitalization rate is the best index of the prevalence or extent of mental illness. Since the number of patients in the institutions depends to a large extent on the rated capacity of the institutions, these two indexes are not true indicators of incidence and prevalence but only approximations. Both of these measures will be considered in this paper.

The term "mental illness and handicap" will in this study be considered as encompassing all patients who are admitted to hospitals for mental disease and institutions for mental defect and epilepsy. The diagnostic groupings consist of mentally diseased patients, mental defectives, epileptics, alcoholics, drug addicts, and others without psychosis. Perhaps some apology should be offered for combining in one presentation the statistics on mental disease with those on mental defect, epilepsy, alcoholism, drug addiction, and others. This apology is especially needed in view of the concerted efforts of Dr. Pollock and others to segregate the statistics for these varied conditions. With these efforts the writer is in full sympathy. This paper, however, does not present new data in this field; it simply attempts to integrate the data collected by others in order to present a bird's-eye view of the entire field in which psychiatrists and their colleagues in closely allied professions are at work.

The close administrative tie-up between these inherently different conditions is perhaps fortuitous, but that these ailments fall largely in the domain of State care cannot be denied. Public health officers, administrators, and legislators who are not interested so much in scientific aspects of the mentally ill and handicapped as they are in the general extent of the problem, the expense involved, and the agencies that are now available for coping with these problems, will find in this presentation a concise answer to some of the questions that they meet in their work. Perhaps for States like New York and Massachusetts, such treatment of the data is not necessary, because the very adequate reports prepared by their respective statisticians cover the field quite fully. In other States, however, the statistics are not always presented as clearly and succinctly as in New York and Massachusetts. In some States only one institution, usually the State hospital, exists for the care of all types of patients, and even in States that have separate facilities complete segregation is not always found. All the patients in these institutions are usually regarded as mentally diseased, and counted as such in the general summaries.

In this paper, allowing as it does for the inclusion of all types of mental disease and handicap, the patients are presented under specific diagnoses rather than by type of hospital. In this way the rates for the various types of ailments are rendered more comparable from State to State. Wherever possible the statistics have been separated in this manner, and recombined later into a total to show the vast extent of the problem facing those who are in charge of these institutions throughout the country.

It will be noted that the totals for the figures in table 3 are not in full agreement with those that appear in table 2. This is due to the fact that the two sets of figures are not drawn from the same sources; table 2 is based on data prepared by the American Medical Association

for 1936, while the remainder of the data is based on the reports of the Bureau of the Census for 1935. It would have been better to have drawn both sets of figures from the same source, but this was not possible, since the Bureau of the Census does not give the information which was needed for table 2 by individual hospitals.

In this paper an attempt is made to present the data for mental disease and mental handicap so as to bring out the varying pattern of mental illness and its care throughout the country. In order to reduce the problem to easily comprehensible dimensions, the geographic regions of the country, as established by the Bureau of the Census, will form the unit of description, rather than the individual States. In grouping the States into such large units, we are no doubt obscuring certain interstate differences in the various regions. But it can be readily shown that, by and large, the States within a region differ less from each other with respect to mental disease indexes than States selected at random. This is perhaps insufficient justification for grouping the States into these regions, but such grouping does offer certain advantages, since the large numbers involved in each area tend to average out the statistical variability in the data. A fuller study of State differences would throw greater light on the problem, but such a study would require much more adequate data than are now available.

The total number of mentally ill and handicapped persons in the United States has never been ascertained accurately. There are fairly reliable figures for the number of patients in mental hospitals but none for those outside of hospitals. The Bureau of the Census has made attempts in the past to enumerate, in the course of the regular decennial census, all persons with mental disease and handicap who are outside of institutions, but these attempts were not fully successful, except for the 1880 and 1890 censuses which yielded fairly good results. "Since 1890, however, no attempt has been made to include in the regular census the mentally ill who are at large, or not under institutional care" (*5*).

An exact measure of the prevalence of mental illness and handicap in a given community would involve a house-to-house canvass by specially trained observers. Such a survey is quite costly and probably could never be carried out for the entire country, although the determination of the prevalence of noninstitutionalized cases of mental disease and handicap by sampling techniques is quite possible and was recently carried out under the auspices of the Public Health Service (*1*). In this study we shall limit ourselves to *hospitalized* cases rather than all mental illness and handicap in and out of the hospital. First, the data for all patients in the hospital at the end of 1935 will be presented, then the data for the first admissions during 1935.

## RESIDENT PATIENTS

There were 515,000 patients in all the institutions caring for the mentally ill and handicapped in the United States at the end of 1935. Of this number 405,000, or about 80 percent, were mentally diseased; 84,000, or 16 percent, were mental defectives; 22,000, or 4 percent, epileptics; 1,500, or 0.3 percent, alcoholics; 250 were drug addicts; and 2,600 were placed in the category of "others." The distribution of patients by diagnosis is shown in table 3.

TABLE 3.—*Patients in all institutions for the mentally ill and handicapped by diagnosis, 1935*

| Diagnosis | Number | Percent |
|---|---|---|
| Mental disease | 404,542 | 78.7 |
| Mental defect | 83,805 | 16.3 |
| Epilepsy | 21,585 | 4.2 |
| Alcoholism | 1,440 | 0.3 |
| Drug addiction [1] | 250 | 0.0 |
| Others | 2,601 | 0.5 |
| Total | 514,223 | 100.0 |

[1] The patients in the United States Public Health Service Hospital, Lexington, Kentucky, are not included. If they were included, the total number of drug addicts in mental hospitals would rise to 1,220.

These proportions do not obtain everywhere throughout the country. The proportions for the individual regions are shown in table 4.[4]

TABLE 4.—*Distribution of all resident mental patients, by region, 1935*

| Geographic region | Total number of patients | Mental disease | Mental defect [1 2] | Epilepsy [1 2 3] | Alcoholism [1] | Drug addiction [1] | Others [1 4] |
|---|---|---|---|---|---|---|---|
| | | *Percent* | *Percent* | *Percent* | *Percent* | *Percent* | *Percent* |
| New England | 48,582 | 76.8 | 18.2 | 4.6 | 0.05 | 0.04 | 0.29 |
| Middle Atlantic | 141,918 | 79.3 | 16.6 | 3.9 | 0.05 | 0.01 | 0.16 |
| East North Central | 109,874 | 73.9 | 19.9 | 5.2 | 0.27 | 0.05 | 0.72 |
| West North Central | 54,480 | 74.8 | 18.6 | 5.7 | 0.49 | 0.06 | 0.29 |
| South Atlantic (excluding District of Columbia) | 46,699 | 83.6 | 12.0 | 3.0 | 0.70 | 0.10 | 0.60 |
| East South Central | 23,966 | 86.2 | 11.6 | 1.2 | 0.25 | 0.13 | 0.60 |
| West South Central | 32,969 | 81.4 | 11.0 | 5.2 | 0.17 | 0.06 | 2.15 |
| Mountain | 12,817 | 78.9 | 16.2 | 4.0 | 0.31 | 0.08 | 0.52 |
| Pacific | 37,217 | 83.2 | 12.9 | 2.8 | 0.80 | 0.08 | 0.24 |
| United States [5] | 514,223 | 78.7 | 16.3 | 4.2 | 0.28 | 0.05 | 0.51 |

[1] Without psychosis. Patients who are diagnosed as with psychosis are not counted in these columns but appear in the column headed "Mental disease."

[2] Includes in addition to the number of patients in all institutions for mental defect and epilepsy, the estimated number of mental defectives and epileptics in hospitals for mental disease, based on percentages of mental defectives and epileptics without psychosis in State hospitals in 1933.

[3] Includes patients diagnosed as "both mentally defective and epileptic."

[4] Others in hospitals for mental disease. The category of "others" in institutions for mental defectives and epileptics was in this table distributed in the categories of mental defect and epilepsy.

[5] Includes District of Columbia.

(Source: "Patients in Hospitals for Mental Disease" and "Mental Defectives and Epileptics in Institutions," Bureau of the Census, United States Department of Commerce, 1933, 1935.)

[4] For list of States by region, see appendix.

### REGIONAL DIFFERENCES IN PROPORTION OF PATIENTS BY DIAGNOSIS

It will be noted that the regions with the highest proportion of mentally diseased patients in institutions for the mentally ill and handicapped are the East South Central, the West South Central, the South Atlantic, and the Pacific. In each of these regions the proportion of all patients in mental institutions who are mentally diseased is about 85 percent, while the proportion in the other regions is much lower. It is probable that the southern regions, because of the limited capacities of their hospitals, can admit only the more serious mentally diseased cases.

The three regions that showed the highest proportion of mentally diseased patients are correspondingly lowest in the proportion of mental defectives and epileptics. These smaller proportions are probably due in part to the lack of facilities and partly to the probable lesser need for hospitalizing such patients in the rural South.

### AGE RANGES FOR DIAGNOSTIC GROUPING

In order to compare the hospitalization rates for the various diagnoses by regions, it is necessary to relate the frequency of each diagnosis to the general population. The usual procedure is to compute rates based on the total population. The different types of illnesses to be compared do not come uniformly from all age groups in the population. In order to render the rates comparable, it was necessary to determine for each illness the age range from which most of the patients are drawn. In this study it was arbitrarily decided to include only the middle 90 percent of the age distribution for each illness in order to avoid the unwarranted lengthening of the range caused by scattering cases at the extremes.[5] The general population between the age limits established for each illness will be considered as the base from which to compute the chance of hospitalization from that illness.

The hospitalization rate for all types of mental illness and handicap in the United States is 445.9 per 100,000 population aged 5 and over, the age range from which the vast majority of the patients are drawn.

### REGIONAL DIFFERENCES IN HOSPITALIZATION RATES BY DIAGNOSES

The hospitalization rate in New England, 627, is the highest, being nearly one and a half times as high as the rate for the entire country.

[5] This procedure is called the "age-limited method for computing disease rates" and a discussion of it, together with a comparison with more elaborate methods is given in Age Adjustment of Death Rates. Report of the Committee on Forms and Methods of Statistical Practice. Supplement to American Journal of Public Health, vol. 28, No. 2, February 1938, p. 164. It should be pointed out that while the population base in these rates included only the middle 90 percent of the age range that corresponds to the age distribution of the patients, the total population of the patients was used in the numerator. The slight error which this introduces is probably negligible.

The lowest rate, 292, is found in the West South Central region.[6] This is only two-thirds of the rate in the entire country. These data are shown in table 5 and figures 1 and 2. The rates for the District of Columbia are not comparable with the rates for the other sections since the mental hospital for the District, St. Elizabeths, receives patients from all parts of the country.

TABLE 5.—*Hospitalization rates for all mental patients per 100,000 exposed to the risk of hospitalization, by region, 1935*

| Geographic region | Total (per 100,000 persons aged 5 and over) | Mental disease (per 100,000 persons aged 15 and over) | Mental defect [1 2] (per 100,000 persons aged 5–49) | Epilepsy [1 2 3] (per 100,000 persons aged 5–54) | Alcoholism [1] (per 100,000 persons aged 15 and over) | Drug addiction [1] (per 100,000 persons aged 15 and over) | Others [1 4] (per 100,000 persons aged 15 and over) |
|---|---|---|---|---|---|---|---|
| New England | 626.7 | 604.5 | 147.7 | 34.6 | 0.4 | 0.3 | 2.3 |
| Middle Atlantic | 570.0 | 567.9 | 117.0 | 25.6 | .4 | .1 | 1.1 |
| East North Central | 471.1 | 438.0 | 117.0 | 28.5 | 1.7 | .3 | 4.3 |
| West North Central | 438.2 | 418.7 | 103.1 | 29.7 | 2.8 | .3 | 1.7 |
| South Atlantic (excluding District of Columbia) | 323.6 | 367.6 | 46.1 | 11.0 | 3.1 | .5 | 2.6 |
| East South Central | 258.4 | 301.7 | 35.9 | 3.4 | .9 | .5 | 2.1 |
| West South Central | 291.7 | 316.7 | 38.0 | 16.8 | .6 | .3 | 8.4 |
| Mountain | 382.3 | 395.8 | 75.5 | 17.4 | 1.6 | .4 | 2.6 |
| Pacific | 466.1 | 478.8 | 77.8 | 15.4 | 4.7 | .5 | 1.3 |
| United States [5] | 445.9 | 450.7 | 89.7 | 21.7 | 1.6 | .3 | 2.8 |

[1] Without psychosis. Patients who are diagnosed as with psychosis are not counted in these columns but appear in the column headed "Mental disease."

[2] Includes, in addition to the total number of patients in all institutions for mental defect and epilepsy, the estimated number of mental defectives and epileptics in hospitals for mental disease, based on percentages of mental defectives and epileptics in State hospitals in 1933.

[3] Includes patients diagnosed as "both mentally defective and epileptic."

[4] Others in hospitals for mental disease. The category of "others" in institutions for mental defectives and epileptics was in this table distributed in the categories of mental defect and epilepsy.

[5] Includes District of Columbia.

(Source: Patients in Hospitals for Mental Disease and Mental Defectives and Epileptics in Institutions, Bureau of the Census, United States Department of Commerce, 1933, 1935.)

For patients diagnosed as mentally diseased, the hospitalization rate for the entire country is 450.7 per 100,000 persons aged 15 and over. This rate is highest in the New England region (604.5) and lowest in the East South Central (301.7).

For mental defect, the rate for the entire country is 89.7 per 100,000 persons aged 5 to 49. The highest rate is in the New England area, the lowest in the East South Central region. The same relationship holds true of epilepsy. For alcoholism the rate is highest in the Pacific region and lowest in the New England and Middle Atlantic regions. The rate for drug addicts is only 0.3 per 100,000 of the population 15 years and over.

A ready method for comparing the hospitalization rates for the various diagnostic groupings in the different regions is applied in table 6, where each rate is divided by the average rate for the entire country for each diagnosis. Thus, table 6 shows that the total hospitalization rate for New England is 140.5 percent of the average rate for the country, while the rate in the East South Central region is only 58.0 percent of the rate for the entire country.

[6] The age distributions for 1935 were obtained by utilizing the distributions for 1930, the last year for which age distributions are available. The proportions in each age group in 1930 were applied to the estimated population in 1935 to obtain the estimated number in each age group in that year.

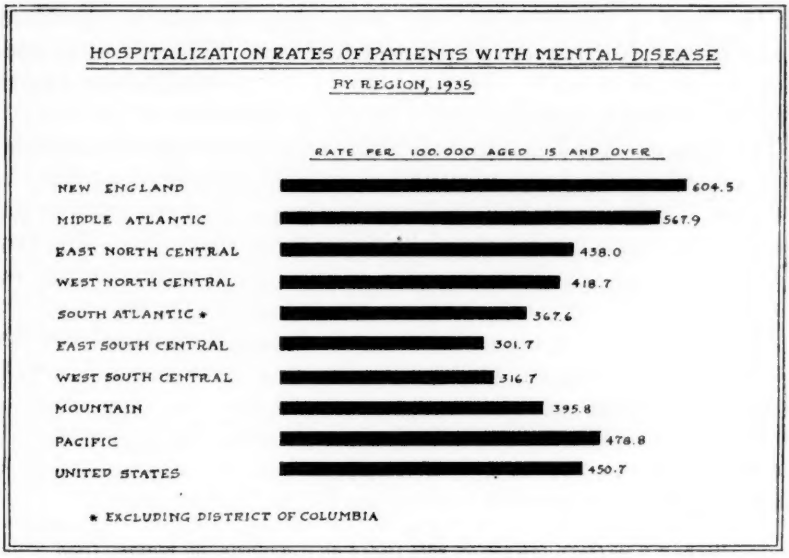


FIGURE 1.

There are no standards by which to gauge the present rates in the various regions. Some tentative standards have been suggested for patients diagnosed as mentally diseased. For these diseases, the minimum rate in urban centers is placed at 540 per 100,000 aged 15 and over and in rural areas at 530 per 100,000 of the same age range.[7]

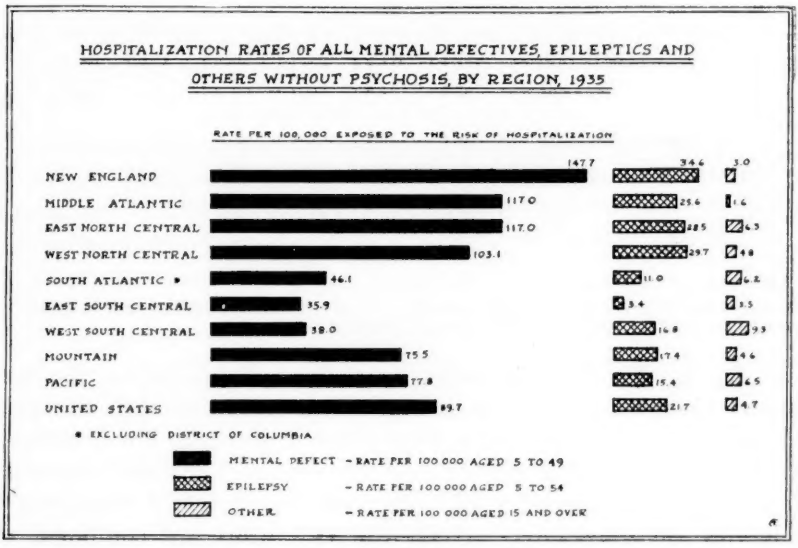


FIGURE 2

[7] The writer has been unable to trace the source of these standards, but they have developed as rule of thumb estimates in the work of the National Committee for Mental Hygiene. The original estimates were 350 per 100,000 of the general population in rural areas and 400 per 100,000 in urban areas. When the population base is changed to 15 years old and over as of 1930, these rates become 530 and 540, respectively.

On the basis of this standard, the hospitalization rate for the United States is only 86.7 percent of the expected rate. The degree to which each region lives up to the expected in its hospitalization rate for mentally diseased patients is also shown in table 6.

The regions that live up to or even exceed the minimal standard with regard to the hospitalization of mentally diseased patients are the New England and Middle Atlantic regions. In the other regions the actual hospitalization rate falls short of the expected. The range is from 89.2 percent of the expected in the Pacific region to only 54.4 percent of the expected in the East South Central region.

*Mental defect.*—For mental defect, no minimal standard has been established. Taking the average for the country as our standard, the regions that meet or exceed the standard are the New England, Middle Atlantic, East North Central, and West North Central. In the other regions, the range is from 87 percent of the expected in the Pacific region to 40 percent in the East South Central region.

TABLE 6.—*Hospitalization rate index by diagnosis, by region, 1935*

[United States=100]

| Geographic region | Total per 100,000 persons aged 5 and over (index with U.S.=100) | Mental disease (per 100,000 persons aged 15 and over) | | Mental defect [1] (per 100,000 persons aged 5–49) | Epilepsy [1] (per 100,000 persons aged 5–54) | Alcoholism [1] (per 100,000 persons aged 15 and over) | Drug addiction [1] (per 100,000 persons aged 15 and over) | Others [1] (per 100,000 persons aged 15 and over) |
|---|---|---|---|---|---|---|---|---|
| | | Index with U.S.=100 | Percent of expected rate | | | | | |
| New England | 140.5 | 134.1 | 114.8 | 164.7 | 159.4 | 25.0 | 100.0 | 82.1 |
| Middle Atlantic | 127.8 | 126.0 | 106.4 | 130.4 | 118.0 | 25.0 | 33.3 | 39.3 |
| East North Central | 105.7 | 97.2 | 84.6 | 130.4 | 131.3 | 106.3 | 100.0 | 153.6 |
| West North Central | 98.3 | 92.9 | 80.4 | 114.9 | 136.9 | 175.0 | 100.0 | 60.7 |
| South Atlantic (excluding District of Columbia) | 72.6 | 81.6 | 77.2 | 51.4 | 50.7 | 193.8 | 166.7 | 92.9 |
| East South Central | 58.0 | 66.9 | 54.4 | 40.0 | 156.7 | 56.3 | 166.7 | 75.0 |
| West South Central | 65.4 | 70.3 | 64.0 | 42.4 | 77.4 | 37.5 | 100.0 | 300.0 |
| Mountain | 85.7 | 87.8 | 79.0 | 84.2 | 80.2 | 100.0 | 133.3 | 92.9 |
| Pacific | 104.5 | 106.2 | 89.2 | 86.7 | 71.0 | 293.8 | 166.7 | 46.4 |
| United States [2] | 100.0 | 100.0 | 86.7 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

[1] Without psychosis.
[2] Includes District of Columbia.

(Source: Patients in Hospitals for Mental Disease and Mental Defectives and Epileptics in Institutions, Bureau of the Census, United States Department of Commerce, 1935.)

*Epilepsy.*—The hospitalization rates for epilepsy follow the same general pattern as those for mental defect with the single exception that the East South Central region, which is generally low in all other rates, is near the top in the rate for epilepsy without psychosis. However, it has an unusually low rate for patients diagnosed as epileptics *with psychosis*. When the two rates are combined the rate for the East South Central is 15.4, which is 70 percent of the rate for the country. The low rate for the South Atlantic region is explainable in an analogous manner. The rate for epilepsy with

psychosis is unusually high but when the rate for epilepsy with psychosis is combined with the rate for epilepsy without psychosis, the discrepancy disappears.

*Alcoholism and drug addiction.*—With regard to alcoholism and drug addiction, the interregional comparisons are modified by individual State laws and the differences that appear in the table are due more to legal differences with regard to hospitalization than to endemic and other differences in the population.

To sum up, the Northern and Pacific States have higher hospitalization rates than the Southern and Rocky Mountain States. A concise picture of the difference is presented in table 7, which divides the country into a northern and a southern division.

TABLE 7.—*Hospitalization rates by diagnosis in the Northern and Pacific States and in the Southern and Rocky Mountain States, 1935*

| Diagnosis | United States | Northern and Pacific States [1] | Southern and Rocky Mountain States [2] |
|---|---|---|---|
| Mental disease (per 100,000 persons aged 15 and over) | 450.7 | 502.5 | 339.3 |
| Mental defect (per 100,000 persons aged 5–49) | 89.7 | 113.6 | 46.9 |
| Epilepsy (per 100,000 persons aged 5–54) | 21.7 | 26.9 | 11.4 |
| Alcoholism (per 100,000 persons aged 15 and over) | 1.6 | 1.5 | 1.7 |
| Drug addiction (per 100,000 persons aged 15 and over) | 0.3 | 0.3 | 0.3 |
| Others (per 100,000 persons aged 15 and over) | 2.8 | 2.3 | 4.2 |
| Total (per 100,000 persons aged 5 and over) | 445.9 | 517.2 | 303.6 |

[1] Northern and Pacific States: New England, Middle Atlantic, East North Central, West North Central, Pacific States, and District of Columbia.

[2] Southern and Rocky Mountain States: South Atlantic (excluding District of Columbia), East South Central, West South Central and Mountain States.

(Source: Patients in Hospitals for Mental Disease and Mental Defectives and Epileptics in Institutions, Bureau of the Census, United States Department of Commerce, 1935.)

The geographical regions included in the two divisions are given at the bottom of table 7. The Southern and Rocky Mountain division includes both the northern and the southern Mountain States, but the former have been included with the Southern States because of their low rates.

The total hospitalization rate for all types of mental illness and handicap in the Northern and Pacific States is 517 per 100,000 persons aged 5 and over, while the corresponding rate in the Southern and Mountain States is 303, or only three-fifths as high. For patients diagnosed as mentally diseased, the Northern and Pacific rate is 502 per 100,000 aged 15 and over, while the rate in the Southern and Mountain States is 339, or only two-thirds as high.

The greatest discrepancy is found in the rate for mental defect. Here the rate in the Southern and Mountain States, 47 per 100,000 aged 5–49, is only two-fifths as high as the Northern and Pacific rate, 113.

For epilepsy the rate in the Southern and Mountain States, 11 per 100,000 aged 5–54 is only 42 percent of the Northern and Pacific rate, 27.

It should be pointed out that the larger proportion of Negroes in the South is not a sufficient explanation of the difference between the Northern and Pacific and the Southern and Rocky Mountain rates. In the Southern States for which data are now available in the files of the Mental Hospital Survey Committee, the rates for Negroes are either equal to or considerably higher than the rates for the whites for patients diagnosed as with psychosis. Only in the case of mental defect and epilepsy do the Negroes seem to have lower hospitalization rates in some States. An explanation of the wide discrepancy in the rates for mental disease must be sought in such factors as adequacy of facilities, longer establishment of hospital care, urban-rural distribution, and similar factors.

### FIRST ADMISSIONS

The best gauge of the present trend in mental illness and handicap is the number of first admissions to mental hospitals. During 1935 about 110,000 patients were admitted for the first time to all the institutions of the country caring for the mentally ill and handicapped. Of this number 85,000, or 78 percent, were diagnosed as mentally diseased and 24,000, or 22 percent, were diagnosed in the other categories. The distribution of patients by type of mental illness and handicap is shown in table 8.

TABLE 8.—*First admissions of patients to all institutions for mental diseases, by diagnosis, 1935*

| Diagnosis | Number | Percent |
|---|---|---|
| Mental disease | 85,533 | 77.9 |
| Mental defect | 9,528 | 8.7 |
| Epilepsy | 2,985 | 2.7 |
| Others in institutions [1] | 532 | 0.5 |
| Alcoholism | 6,379 | 5.8 |
| Drug addiction | 887 | 0.8 |
| Others in hospitals [2] | 3,992 | 3.6 |
| Total | 109,836 | 100.0 |

[1] Others in institutions for mental defect and epilepsy.
[2] Others in hospitals for mental disease.

### DISTRIBUTION OF FIRST ADMISSIONS BY DIAGNOSIS

There were approximately 9,500 mental defectives, or 9 percent of the total for all mental disease; 3,000 epileptics, or 3 percent of the total; about 500 patients in institutions for mental defectives and epileptics who were diagnosed as neither defective nor epileptic; 6,400 alcoholics, or 6 percent of the total; about 900 drug addicts, or

less than 1 percent of the total; and approximately 4,000 other patients diagnosed as without psychosis in hospitals for mental disease, or 4 percent of the total. These proportions did not obtain uniformly throughout the country. The regional distribution of these proportions is shown in table 9.

TABLE 9.—*First admissions to all institutions for the mentally ill and handicapped, by region, 1935*

| Geographic region | Total number of admissions | Mental disease | Mental defect [1] | Epilepsy [1 2] | Others [3] | Alcoholism [1] | Drug addiction [1] | Others [1 4] |
|---|---|---|---|---|---|---|---|---|
| | | *Percent* | *Percent* | *Percent* | *Percent* | *Percent* | *Percent* | *Percent* |
| New England | 8,528 | 79.8 | 8.1 | 2.7 | 0.5 | 4.9 | 0.8 | 3.2 |
| Middle Atlantic | 27,514 | 80.9 | 11.2 | 3.0 | 0.9 | 1.4 | 0.3 | 2.2 |
| East North Central | 22,723 | 77.7 | 8.7 | 3.2 | 0.5 | 3.7 | 0.7 | 5.4 |
| West North Central | 10,183 | 75.0 | 10.0 | 3.1 | 0.1 | 8.0 | 0.8 | 2.9 |
| South Atlantic (excluding District of Columbia) | 11,953 | 73.4 | 5.9 | 1.7 | 0.2 | 14.0 | 1.5 | 3.2 |
| East South Central | 7,459 | 78.2 | 5.6 | 1.4 | 0.01 | 8.5 | 2.3 | 4.0 |
| West South Central | 8,332 | 79.9 | 7.1 | 3.6 | 0.3 | 3.2 | 0.9 | 4.9 |
| Mountain | 2,722 | 69.7 | 11.4 | 3.4 | 0.6 | 5.1 | 0.8 | 9.0 |
| Pacific | 9,518 | 75.5 | 6.9 | 1.6 | 0.6 | 12.5 | 0.4 | 2.6 |
| United States [5] | 109,836 | 77.9 | 8.7 | 2.7 | 0.5 | 5.8 | 0.8 | 3.6 |

[1] Without psychosis. Patients who are diagnosed as with psychosis are not counted in these columns, but appear in the column headed "Mental disease."
[2] Including those with both mental defect and epilepsy.
[3] Others in institutions for mental defect and epilepsy.
[4] Others in hospitals for mental disease.
[5] Includes District of Columbia.

(Source: Patients in Hospitals for Mental Disease and Mental Defectives and Epileptics in Institutions, Bureau of the Census, United States Department of Commerce, 1935.)

*Mental defect and epilepsy.*—The proportion of first admissions diagnosed as mental defectives was highest in the Middle Atlantic and Mountain regions and lowest in the East South Central region. The proportion of epileptics exhibited the same general regional pattern.

*Alcoholics.*—The South Atlantic and the Pacific regions led in the proportion of alcoholics admitted to institutions, while the lowest proportion for this category obtained in the Middle Atlantic region.

### FIRST ADMISSION RATES

The first admission rate for all patients was 95.0 per 100,000 aged 5 and over, the age range from which the vast majority of the patients are drawn. Since most of the patients diagnosed as mentally diseased are drawn from the age group above 15, the rate for this group is computed on the basis of the general population aged 15 and over. This rate is 95.0 for the United States. The mental defectives have a rate of 16.2 per 100,000 aged 5 to 29, and the epileptics 3.0 per 100,000 aged 5 to 54. There is a small proportion of patients who are neither mental defectives nor epileptics in the State institutions for mental

defect and epilepsy, giving a rate of 0.5 per 100,000 aged 5 to 54. The alcoholics show a rate of 7.1 per 100,000 aged 15 and over, and drug addicts 1.0 per 100,000 aged 15 and over; and the others in hospitals for mental disease, 4.4 per 100,000 aged 15 and over. The rates for the country as a whole, together with rates for individual regions, are shown in table 10 and figures 3 and 4.

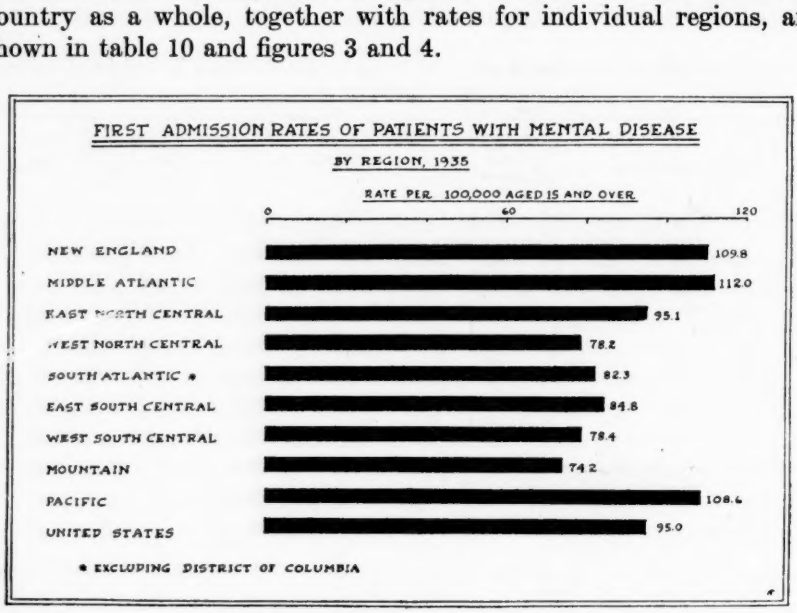


FIGURE 3

TABLE 10.—*First admission rates of all mental patients by diagnosis, by region, 1935*

| Geographic region | Total (per 100,000 persons aged 5 and over) | Mental disease (per 100,000 persons aged 15 and over) | Mental defect [1] (per 100,000 persons aged 5–29) | Epilepsy [1 2] (per 100,000 persons aged 5–54) | Others [1 3] (per 100,000 persons aged 5–54) | Alcoholism [1] (per 100,000 persons aged 15 and over) | Drug addiction [1] (per 100,000 persons aged 15 and over) | Others [1 4] (per 100,000 persons aged 15 and over) |
|---|---|---|---|---|---|---|---|---|
| New England | 109.6 | 109.8 | 19.1 | 3.5 | 0.7 | 6.7 | 1.1 | 4.4 |
| Middle Atlantic | 110.3 | 112.0 | 25.4 | 3.9 | 1.1 | 1.9 | 0.4 | 3.2 |
| East North Central | 97.3 | 95.1 | 17.4 | 3.7 | 0.6 | 4.5 | 0.8 | 6.6 |
| West North Central | 81.7 | 78.2 | 16.4 | 3.0 | 0.1 | 8.4 | 0.8 | 3.1 |
| South Atlantic (excluding District of Columbia) | 82.5 | 82.3 | 8.4 | 1.6 | 0.1 | 15.7 | 1.7 | 3.7 |
| East South Central | 80.1 | 84.8 | 7.9 | 1.3 | (5) | 9.2 | 2.4 | 4.3 |
| West South Central | 73.5 | 78.4 | 9.0 | 3.0 | 0.3 | 3.1 | 0.9 | 4.8 |
| Mountain | 81.1 | 74.2 | 17.7 | 3.2 | 0.5 | 5.4 | 0.9 | 9.5 |
| Pacific | 118.8 | 108.6 | 18.4 | 2.2 | 0.9 | 17.9 | 0.7 | 3.7 |
| United States [6] | 95.0 | 95.0 | 16.2 | 3.0 | 0.5 | 7.1 | 1.0 | 4.4 |

[1] Without psychosis. Patients diagnosed as with psychosis are not counted in these columns but appear in the column headed "Mental disease."
[2] Including those with both mental defect and epilepsy.
[3] Others in institutions for mental defect and epilepsy.
[4] Others in hospitals for mental disease.
[5] Less than 0.05.
[6] Includes District of Columbia.

(Source: Patients in Hospitals for Mental Disease and Mental Defectives and Epileptics in Institutions, Bureau of the Census, United States Department of Commerce, 1935.)

The first admission rate for all mental illness and handicap is highest in the Pacific region, with 118.8 per 100,000 aged 5 and over, and lowest in the West South Central region, with a rate of 73.5. The rate in the Pacific region is approximately one and one-fourth times as high as the rate for the country as a whole, while the rate in the West South Central is only about three-fourths of the rate in the country as a whole.

For patients diagnosed as mentally diseased, the highest rate is found in the Middle Atlantic region, with 112.0 per 100,000 aged 15 and over, while the lowest is in the Mountain region, with a rate of 74.2 per 100,000 aged 15 and over.

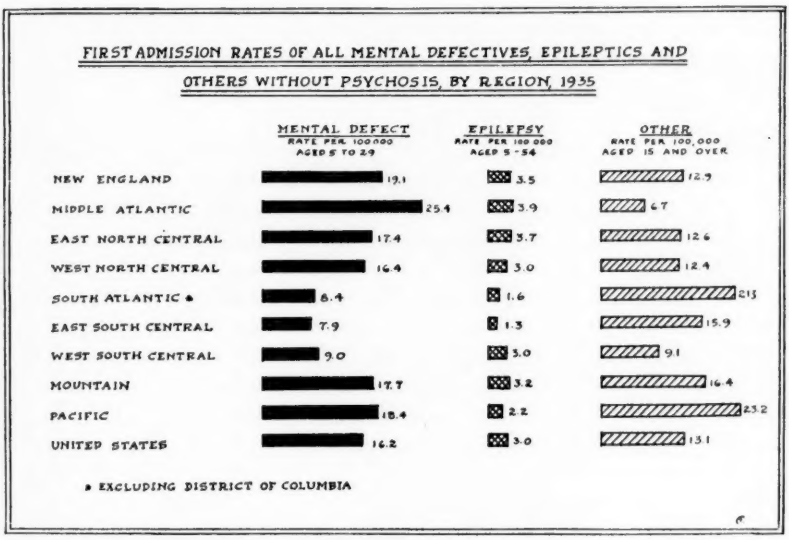


FIGURE 4

For mental defectives the highest rate is in the Middle Atlantic (25.4), while the lowest rate is in the East South Central (7.9). The rate for the former is one and one-half times as high as for the entire country, while that for the latter is only one-half as high as the rate for the entire country.

The region with the highest rate for epilepsy is the Middle Atlantic (3.9), and the region with the lowest is the East South Central (1.3). The Middle Atlantic region has a rate about one and one-third times as high as the rate for the entire country, while the rate for the East South Central region is only about one-half as high.

Hospitalized alcoholics are most prevalent in the Pacific region, with 17.9 per 100,000 persons aged 15 and over, and in the South Atlantic region, with 15.7 per 100,000 aged 15 and over. The region

with the lowest rate is the Middle Atlantic, with 1.9. The rate in the Pacific region is about two and one-half times as high as the rate in the entire country, while the rate in the Middle Atlantic region is only about one-third as high. It is, of course, apparent that the policies with regard to hospitalization for alcoholism in mental institutions vary considerably from region to region.

This disparity also appears in the hospitalization rate for drug addiction. The highest rate is in the East South Central (2.4), while the lowest is in the Middle Atlantic (0.4).

For the miscellaneous group of patients admitted to hospitals for mental disease the Mountain region has the highest rate (9.5), while the West North Central has the lowest (3.1).

The relative size of the rates in the various regions by diagnostic categories becomes more apparent in table 11, where each rate is divided by the average for the country.

TABLE 11.—*First admission rate index by diagnosis and by region, 1935*

| Geographic region | Total (per 100,000 persons aged 5 and over) | Mental disease (per 100,000 persons aged 15 and over) | Mental defect [1] (per 100,000 persons aged 5–29) | Epilepsy [1 2] (per 100,000 persons aged 5–54) | Others [1 3] (per 100,000 persons aged 5–54) | Alcoholism [1] (per 100,000 persons aged 15 and over) | Drug addiction [1] (per 100,000 persons aged 15 and over) | Others [1 4] (per 100,000 persons aged 15 and over) |
|---|---|---|---|---|---|---|---|---|
| New England | 115.4 | 115.6 | 117.9 | 116.7 | 140.0 | 94.4 | 110.0 | 100.0 |
| Middle Atlantic | 116.1 | 117.9 | 156.8 | 130.0 | 220.0 | 26.8 | 40.0 | 72.7 |
| East North Central | 102.4 | 100.1 | 107.4 | 123.3 | 120.0 | 63.4 | 80.0 | 150.0 |
| West North Central | 86.0 | 82.3 | 101.2 | 100.0 | 20.0 | 118.3 | 80.0 | 70.5 |
| South Atlantic (excluding District of Columbia) | 86.8 | 86.6 | 51.9 | 53.3 | 20.0 | 221.1 | 170.0 | 84.1 |
| East South Central | 84.3 | 89.3 | 48.8 | 43.3 | [5] | 129.6 | 240.0 | 97.7 |
| West South Central | 77.4 | 82.5 | 55.6 | 100.0 | 60.0 | 43.7 | 90.0 | 109.1 |
| Mountain | 85.4 | 78.1 | 109.3 | 106.7 | 100.0 | 76.1 | 90.0 | 215.9 |
| Pacific | 125.1 | 114.3 | 113.6 | 73.3 | 180.0 | 252.1 | 70.0 | 84.1 |
| United States [6] | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

[1] Without psychosis. Patients who are diagnosed as with psychosis are not counted in these columns but appear in the column headed "Mental disease."
[2] Including those with both mental defect and epilepsy.
[3] Others in institutions for mental defect and epilepsy.
[4] Others in hospitals for mental disease.
[5] Less than 0.05.
[6] Includes District of Columbia.

(Source: Patients in Hospitals for Mental Disease, and Mental Defectives and Epileptics in Institutions, Bureau of the Census, United States Department of Commerce, 1935.)

Utilizing the rate for the whole country as a standard, the total first admission rate index varies from 125 percent of the standard in the Pacific region to 77 percent in the West South Central region.

The first admission rate index for patients diagnosed as mentally diseased varies from 118 percent of the standard in the Middle Atlantic States to 78 percent in the Mountain region.

For mental defect the first admission rate index varies from 157 percent of the standard in the Middle Atlantic States to 49 percent in the East South Central region.

For epilepsy the variation ranges from 130 percent of the standard in the Middle Atlantic to 43 percent in the East South Central region.

For alcoholism and drug addiction regional variations in laws affect the comparability of the rates.

To summarize, the Northern States have higher first admission rates than the Southern States. The comparative data are shown in table 12.

TABLE 12.—*First admission rates by diagnosis in the Northern and Pacific States and in the Southern and Rocky Mountain States, 1935*

| Diagnosis | United States | Northern and Pacific States [1] | Southern and Rocky Mountain States [2] |
|---|---|---|---|
| Mental disease (per 100,000 persons aged 15 and over) | 95.0 | 101.5 | 81.1 |
| Mental defect (per 100,000 persons aged 5–29) | 16.2 | 20.1 | 10.3 |
| Epilepsy [3] (per 100,000 persons aged 5–54) | 3.0 | 3.5 | 2.0 |
| Others [4] (per 100,000 persons aged 5–54) | 0.5 | 0.8 | 0.1 |
| Alcoholism (per 100,000 persons aged 15 and over) | 7.1 | 5.9 | 9.5 |
| Drug addiction (per 100,000 persons aged 15 and over) | 1.0 | 0.7 | 1.5 |
| Others [5] (per 100,000 persons aged 15 and over) | 4.4 | 4.4 | 4.7 |
| Total (per 100,000 persons aged 5 and over) | 95.0 | 103.0 | 79.1 |

[1] Northern and Pacific States: New England, Middle Atlantic, East and West North Central, Pacific States and District of Columbia.
[2] Southern and Rocky Mountain States: South Atlantic (excluding District of Columbia), East and West South Central and Mountain States.
[3] Including those with both mental defect and epilepsy.
[4] Others in institutions for mental defect and epilepsy.
[5] Others in hospitals for mental disease.

(Source: Patients in Hospitals for Mental Disease and Mental Defectives and Epileptics in Institutions, Bureau of the Census, United States Department of Commerce, 1935.)

The first admission rates in the Northern and Pacific States and in the Southern and Mountain States follow, in general, the same pattern as that presented by the hospitalization rates in these States. For the total first admissions, the rate in the Southern and Mountain States, 79 per 100,000 aged 5 and over, is only three-fourths of the rate in the Northern and Pacific States, 103.

For first admissions diagnosed as mentally diseased, the rate in the Southern and Mountain States, 81 per 100,000 aged 15 and over, is only 80 percent of the rate in the Northern and Pacific States, 102.

For mental defect the rate in the Southern and Mountain States, 10 per 100,000 aged 5–29, is only half the rate in the Northern and Pacific States, 20.

For epilepsy the rate in the Southern and Mountain States, 2.0 per 100,000 aged 5–54, is only 57 percent of the Northern and Pacific rate, 3.5.

The only exception to the generally lower rates of the Southern and Mountain States as compared with the Northern and Pacific States is found in the rates for alcoholism, drug addiction, and "others." But,

as has been pointed out previously, these differences are largely due to differences in the laws in these States.

### PROPORTION OF RESIDENT PATIENTS WHO ARE FIRST ADMISSIONS

The Northern and Pacific States have relatively fewer new admissions as compared to the resident population. That is, new admissions form a smaller proportion of the patient population in the Northern and Pacific than they do in the Southern and Mountain States. This holds true of all the diagnostic groups except the miscellaneous category. These data are shown in table 13.

TABLE 13.—*Ratio of first admissions to resident patients, by diagnosis and region, 1935*

| Diagnosis | Northern and Pacific States | Southern and Rocky Mountain States |
|---|---|---|
| Mental disease | 20.3 | 24.0 |
| Mental defect | 11.3 | 14.7 |
| Epilepsy | 13.5 | 18.5 |
| Alcoholism | 383.1 | 561.4 |
| Drug addiction | 301.4 | 427.4 |
| Others | 189.8 | 111.2 |
| Total | 20.0 | 26.2 |

(Source: Patients in Hospitals for Mental Disease, and Mental Defectives and Epileptics in Institutions, Bureau of the Census, United States Department of Commerce, 1935.)

The smaller proportion of first admissions in the Northern States as compared to the Southern is a phenomenon worthy of further study. The factors causing this difference will probably be found, on the one hand, in the longer record of established care in the North and, on the other hand, in the limited facilities for care in the South. The longer record of care tends to permit an accumulation of continued treatment patients. Consequently, the proportion of first admissions is smaller. In the South, especially in States where the system of care has been more recently established, the first admissions will tend to form a higher proportion of the resident population, because not enough time has elapsed to permit a large accumulation of continued treatment patients. The rather high discharge rate and parole rate in the South, caused primarily by the lack of facilities in some sections, is perhaps another factor. Old patients are probably discharged to make place for the new admissions, thus tending to increase the proportion of the latter. Then, too, the differences in climate and degree of urbanization may play a role in this differential. Perhaps the greater length of stay in the hospital of patients in the North is another factor. An attempt will be made to study all of these factors in forthcoming reports in this series.

It will be noted that there are more first admissions than resident patients in the categories of alcoholism, drug addiction, and "others". This is due to the short stay of these patients in the hospital. On the basis of the available figures it is estimated that the maximum average length of stay of alcoholics is 95 days in the North and 65 days in the South. For drug addicts it is 120 and 84 days, respectively.

## SUMMARY

There are considerable interregional differences in the institutionalization of mental patients in the United States. In general the Northern and Pacific States have higher rates of institutionalization for all types of mental patients excluding alcoholics and drug addicts. The rates in the Southern and Rocky Mountain States vary from two-fifths to two-thirds of the rates in the Northern and Pacific States.

The higher institutionalization rates in the North are also reflected in the higher first admission rates. Only in the case of alcoholism and drug addiction do the Southern States exceed the Northern. In the other types of diseases the Southern rates vary from 50 percent to 80 percent of the Northern rates.

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(*1*) Bulletins of the National Health Survey, 1935–36; Division of Public Health Methods, National Institute of Health; United States Public Health Service, Washington, D. C., 1938.

(*2*) Zubin, J.: The Place of Expenditures for Mental Disease in the State Budget; unpublished study in the archives of the Mental Hospital Survey Committee.

(*3*) Pennell, E. H., Mountin, J. W., and Hankla, E.: Income Expenditures, and Personnel of Hospitals: United States Public Health Service (unpublished).

(*4*) Journal of the American Medical Association, Hospital numbers, **106**: 783 (Mar. 7, 1936), **108**: 1035 (Mar. 27, 1937).

(*5*) Patients in Hospitals for Mental Disease, 1934 and 1935; Bureau of the Census, United States Department of Commerce, Washington, D. C.

## APPENDIX

### REGIONAL GROUPING OF STATES

*New England*
- Maine
- New Hampshire
- Vermont
- Massachusetts
- Rhode Island
- Connecticut

*Middle Atlantic*
- New York
- New Jersey
- Pennsylvania

*East North Central*
- Ohio
- Indiana
- Illinois
- Michigan
- Wisconsin

*West North Central*
- Minnesota
- Kansas
- Nebraska
- North Dakota
- South Dakota
- Missouri
- Iowa

*South Atlantic*
- Delaware
- Maryland
- District of Columbia
- Virginia
- West Virginia
- North Carolina
- South Carolina
- Georgia
- Florida

*East South Central*
- Kentucky
- Tennessee
- Alabama
- Mississippi

*West South Central*
- Arkansas
- Texas
- Louisiana
- Oklahoma

*Mountain States*
- Idaho
- Wyoming
- Colorado
- New Mexico
- Utah
- Montana
- Nevada
- Arizona

*Pacific States*
- Washington
- Oregon
- California

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